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James F. Woodward, Secretary

BUREAU OF TOPOGRAPHIC AND GEOLOGICAL SURVEY
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NEW OIL POOL AT TIDIOUTE
and
GAS POOLS NEAR CORRY AND MEADVILLE, PENNA.

By

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Geologist, this Survey.

Discoveries of oil and gas in northwestern Pennsylvania early in June, 1922, were deemed of sufficient interest to warrant sending a geologist to that region in order to gain first-hand information for answering queries concerning these new pools. The pools were visited June 28-30.

Tidioute Oil Pool, Warren County.

Oil at Tidioute is nothing new. Back in 1860 oil was first discovered in this region and considerable production was obtained by sinking shallow wells to the Second and Third Venango oil sands. At that time wells a thousand feet in depth were considered to be very deep and after two or three wells had been sunk to that depth without encountering any oil below the Third sand, it was taken for granted that no oil existed in the Tidioute region below that sand. Later, as the art of drilling was improved and holes were put down deeper and deeper, two or three holes more than 1500 feet deep were sunk in the vicinity of Tidioute. These holes were also dry and merely confirmed the opinion of most people that drilling below the Third sand in the Tidioute region was a fruitless undertaking.

The production of oil in the Tidioute region reached a maximum in 1866-67 when the Dennis Run pool was developed. Following that period production gradually declined until about 1904 when the Tidioute oil pool, which had been flooded previously, was unwatered by pumping and good production was obtained. Constant pumping of the wells since that time has practically exhausted the supply of oil in the Second and Third sands, but the wells are still pumped for the gasoline that can be extracted from the rich gas obtained.

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In addition to the oil pools developed in and around Tidicote, gas was discovered in a deeper sand on Queen Creek about four miles southeast of the town. For want of a better name this sand was called the Queen sand. Wells in this pool encountered the top of the Queen sand about 700 feet below the top of the Third sand. The sand averaged 100 feet in thickness.

When Charles Carnahan decided to drill on the Siggins farm in the spring of 1922, (it is reported that a dream induced him to do it) he had perseverance enough to keep on drilling even though no production was obtained in the Third sand and for a depth of considerably more than 700 feet below the top of that sand. The bit finally entered pay sand about 750 feet below the top of the Third sand on or about June 1, 1922. The flow of gas was so strong at first that it sprayed oil all around the well. Production at first was at the rate of only 20 bbls. a day, but on drilling further into the sand, the production was increased to over a hundred barrels a day.

Since the Carnahan discovery well was drilled, many other rigs have been erected and holes put down as fast as the drillers know how. The map attached to this report shows the location of most of these wells as of June 28, 1922.

Production
July 20, 1922
in barrels.

No. 1 - Carnahan No. 1 well on Siggins farm	100
No. 2 - " No. 2 " " "	100
No. 3 - " " " Schoellkopf farm	± 30
No. 4 - Clinger No. 1 well on Hunter estate	200
No. 5 - " No. 2 " " "	400
No. 6 - Carnahan No. 1 well on Jennings farm	± 30
No. 7 - " No. 2 " " "	250
No. 8 - " well	300
No. 9 - " well	Drilling
No. 10 - Brocklehurst & Kapp well on Yeager farm	dry
No. 11 - White Oil Company well	± 60
No. 12 - Hague and Company	dry
No. 13 - Hawkey, et al. -	dry
No. 14 - Carnahan well	rig up

The biggest well brought in to date is the Clinger No. 2 well on the Hunter estate. This well was reported July 17th as coming in at 800 barrels. The biggest reported production of the Clinger No. 1 well was 700 barrels. At the time the field was visited (June 28th) the latter well was being deepened and was at that time making about 500 barrels of high gravity (47.7° Beaume') oil a day. The National Transit Pipe Line Co. was taking the production from all the producing wells. Recently this company has had to install a 3-inch line in addition to the two 2-inch lines already laid, in order to take care of all the production.

All of the producing wells are getting oil from the Queen sand. From data at hand it would appear that this sand is at about the same stratigraphic horizon as the well-known Clarendon sand. In the Starbrick well put down just west of the city of Warren, the Glade sand was encountered at a depth of 67 feet below the bottom of the pink rock and the Clarendon at about 167 feet. In the Clinger No. 1 well (listed above) the Queen sand was encountered at a depth of 200 feet below the bottom of the pink rock. Near the town of Clarendon the producing sand (Clarendon) was encountered at a slightly greater depth, but in general the two sands seem to occupy about the same horizon.

Exposures are poor and infrequent in the vicinity of the new pool at Tidioute. Those outcrops seen, however, indicated a very gentle dip to the south. It is possible that there may be a terrace here in the widespread southward-dipping monocline of northwestern Pennsylvania and New York. If such were the case it would account for the location of the oil pool. Until further field work can be done, however, one can only hazard a guess as to the true reasons for its location.

The wells all start at about the stratigraphic horizon of the First sand (Venango group), this sand occurring near the top of the Devonian system. The surrounding hills are capped by Pottsville conglomerate. Boulders of this formation cover the hillsides and effectually conceal the rocks beneath the conglomerate. It is known however that there is an unconformity at the base of the latter in this region and that the strata below the conglomerate dip at a greater angle to the south than does the conglomerate itself. The Mauch Chunk formation is not present in this region.

All of the wells brought in to date are gusher wells, flowing naturally at intervals when the accumulated pressure of the gas in the wells is sufficient to raise the column of oil in the hole. The oil is light-colored, greenish-yellow, and very similar in appearance to a light-bodied lubricating oil. The gravity is 47.7° Beaume. As yet no use has been made of the gas which accompanies the oil.

It is believed that the newly-discovered oil pool will not be of large extent. The oil sands in this region change in character very quickly and it is thought that this characteristic of the sands would limit the pool to a small area even if structural conditions were favorable over a much larger area. Already the pool has been defined by dry holes on the south and northwest.

Gas Pool near Corry, Erie County,

In the latter half of 1921 a small gas pool has been developed about $2\frac{1}{2}$ miles east of Corry, Erie County, Pennsylvania, and half a mile south of Columbus, Warren County. This is in wildcat territory, hitherto thought unproductive. The nearest production of any importance is 25 miles away along the lake shore at Erie. All wells are about 800 feet deep and small producers. The first well was drilled completely through the sand and was soon drowned out by water. The sand is only three feet thick - probably a local stray - and it is

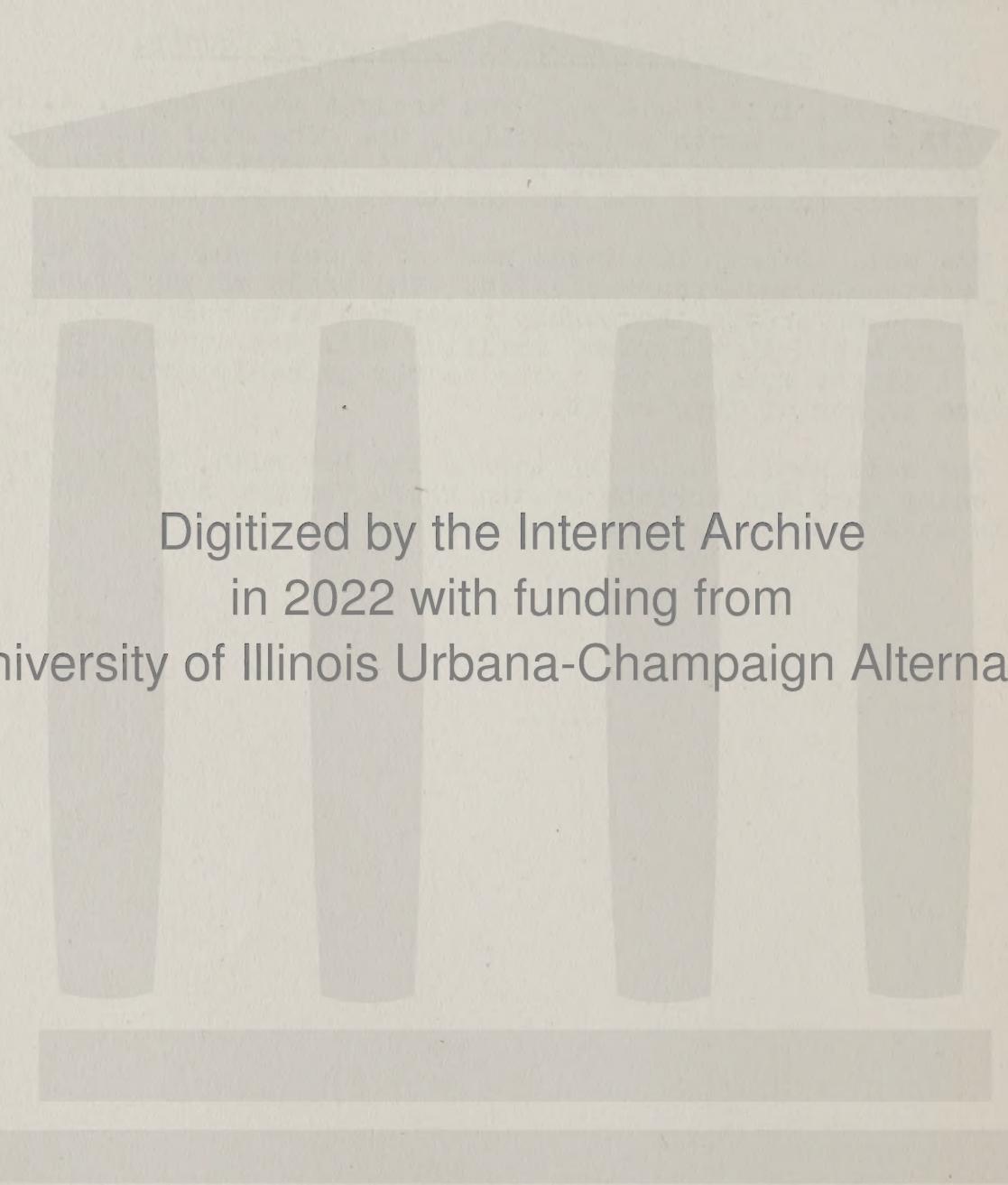
probable that the pool will be very short-lived. At present five wells are producing and the gas is being piped to Corry. The wells start at a geologic horizon about one hundred feet below the base of the Pottsville conglomerate. No logs could be obtained of any of the wells but the producing sand must be somewhere near the horizon of the Glade sand.

Gas Pool at Meadville, Crawford County.

June 14th, 1922 a gas well was brought in on the E. A. DeVore farm, $2\frac{3}{4}$ miles south of Meadville, Pa. The well showed an initial rock pressure of close to 150 pounds and an initial volume of 900,000 cubic feet. It was brought in at a depth of 512 feet.

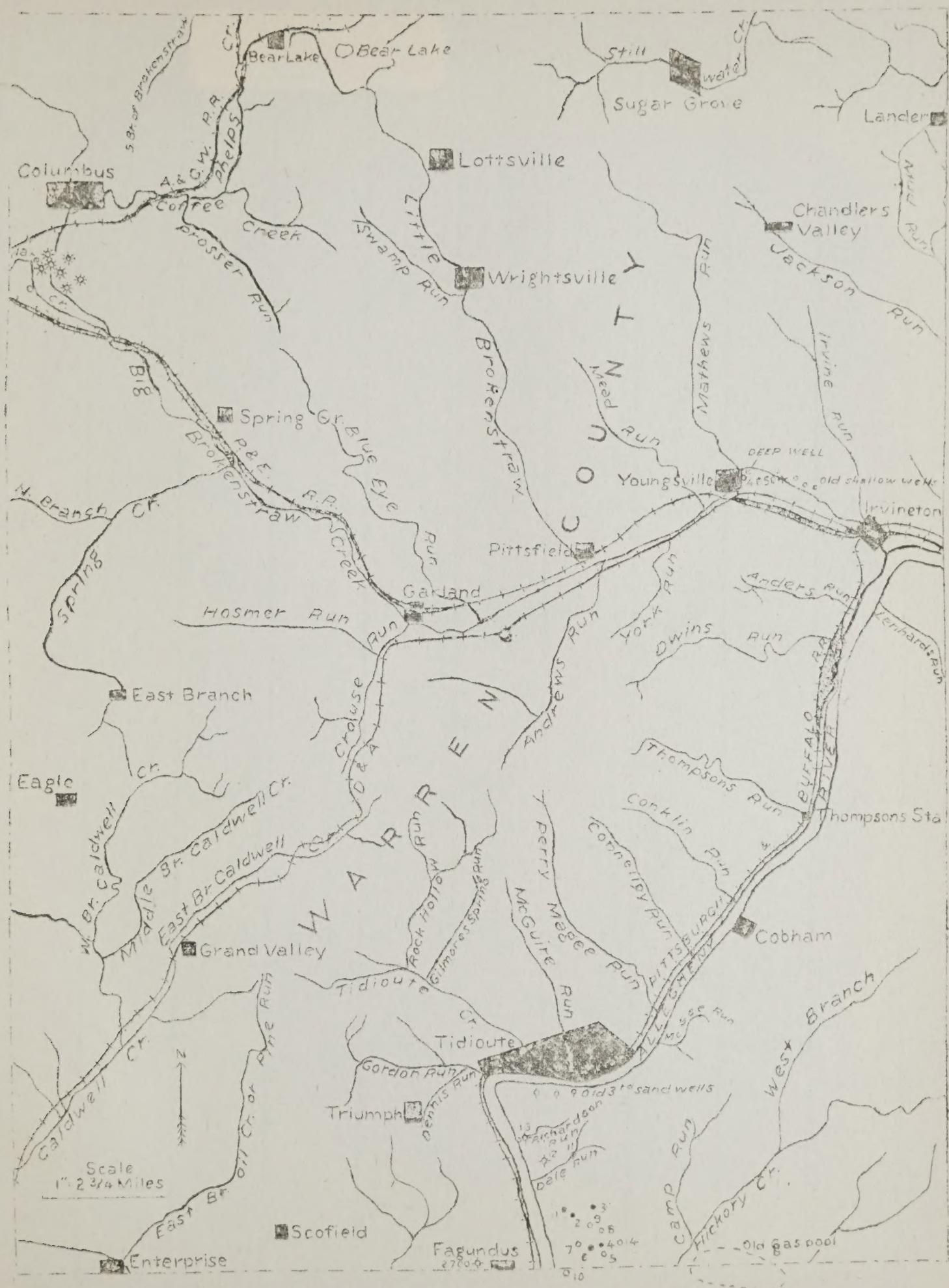
The well is only 200 yards west of a well which had been put down previously and pronounced dry. The whole region around Meadville has been pretty thoroughly punctured with holes and it is thought probable that further drilling will not develop an extensive pool. A slight roll in the rocks nearby probably accounts for the presence of gas at this point.

The well starts near the top of the Devonian, the producing sand being near the horizon of the Third Venango sand. The thickness of the sand has not yet been determined.



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